

EXHIBIT 4

From: Richard Lenz <rlenzen@oysterbay-ny.gov>
Sent: Wednesday, December 18, 2024 3:46 PM
To: David Shea; psachs@db-eng.com
Cc: Matt Russo
Subject: FW: OU3 DEC Data Gap Sampling Plan - Grumman Questions

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As we discussed with the DEC at today's meeting, please see below the questions from Northrop Grumman's regarding Data Gap Sampling Plan.
Rich

Richard W. Lenz, P. E.
Commissioner
Department of Public Works
150 Miller Place, Syosset NY 11791
(516) 677-5124



From: Johnston, Sarah A (DEC) <Sarah.Johnston@dec.ny.gov>
Sent: Wednesday, December 18, 2024 1:17 PM
To: Matt Russo <mrusso@oysterbay-ny.gov>
Cc: Richard Lenz <rlenzen@oysterbay-ny.gov>; Pelton, Jason M (DEC) <jason.pelton@dec.ny.gov>; LaClair, Jess A (DEC) <jess.laclair@dec.ny.gov>
Subject: FW: OU3 Data Gap Sampling Plan

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Matt,

As requested during today's discussion, below are Northrop Grumman's questions on the Department's data gap sampling plan. Let me know if you have any questions.

Thanks,
Sarah

From: Rich Poff <rpoff@verdantas.com>
Sent: Friday, December 13, 2024 4:44 PM
To: Johnston, Sarah A (DEC) <Sarah.Johnston@dec.ny.gov>
Cc: LaClair, Jess A (DEC) <jess.laclair@dec.ny.gov>; Pelton, Jason M (DEC) <jason.pelton@dec.ny.gov>; Sullivan, Jim

(HEALTH) <Jim.Sullivan@health.ny.gov>; Selmer, Stephanie L (HEALTH) <stephanie.selmer@health.ny.gov>; Edward Hannon - Northrop Grumman Systems Corp. (edward.hannon@ngc.com) <edward.hannon@ngc.com>

Subject: FW: OU3 Data Gap Sampling Plan

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Sarah,

Regarding the Department's 11/27/24 proposed data gap sampling program, which includes kriging of the PCB data in the Park, we are providing the following list of questions and information requests to help us better understand the Department's kriging process and proposed soil borings:

- What software was utilized to perform the indicator kriging model?
- Was the model used capable of performing full-dimensional modeling taking into account neighboring points above and below, or were data points input in discrete intervals (2-dimensional) and then stacked?
- When the kriging was performed, were default inputs used, or were modifications made to the kriging to suit this model?
- Can you provide the model output information for the variogram, including the root mean square (RMS) for the data set?
- Please provide the rationale behind 30-foot grid spacing, as 40-foot grid has been previously utilized at the site.
- Proposed total chromium sampling locations in Attachment B are not depicted in the Attachment A kriging figures. If kriged, as the letter suggests, please provide the kriging figures for chromium. And respond to the first 4 bullets as they apply to chromium, if different than for PCBs.
- What is the rationale for the proposed borings in Attachment B that are located within the blue and green shaded grids shown in Attachment A, where the kriging results indicate less than 25% or 50% probability of exceeding 0.1 ppm PCBs, respectively?
- What is the source of the PCB soil concentration data used in 11/27 data gap sampling proposal?

We would like to discuss initial responses to these questions and next steps with the Department during a call any time next Wednesday, 12/18, or after 2:00 on Thursday, 12/19. Please provide your availability as soon as possible for a call during those times.

Thank you and please let us know if you have any questions.

Rich Poff, PG

Senior Scientist

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verdantas



From: Johnston, Sarah A (DEC) <Sarah.Johnston@dec.ny.gov>

Sent: Wednesday, November 27, 2024 10:02 AM

To: edward.hannon@ngc.com; Joel Balmat <jbalmat@verdantas.com>

Cc: Richard Lenz (rlenz@oysterbay-ny.gov) <rlenz@oysterbay-ny.gov>; mrusso@OYSTERBAY-NY.gov;

Stabulas.Alexis@epa.gov; Rich Poff <rpoff@verdantas.com>; Christina Tuohy <ctuohy@verdantas.com>; Bill Lais <wlais@verdantas.com>; Sullivan, Jim (HEALTH) <Jim.Sullivan@health.ny.gov>; Pelton, Jason M (DEC) <jason.pelton@dec.ny.gov>; LaClair, Jess A (DEC) <jess.laclair@dec.ny.gov>

Subject: RE: OU3 Data Gap Sampling Plan

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Ed,

Attached please find the Department's response to Northrop Grumman's OU3 Data Gap Sampling Plan submitted September 27th 2024.

Thank you,
Sarah

Sarah A. Johnston

Assistant Geologist, Division of Environmental Remediation

New York State Department of Environmental Conservation

625 Broadway, Albany, NY 12233

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Department of
Environmental
Conservation



From: Joel Balmat <jbalmat@verdantas.com>

Sent: Friday, September 27, 2024 11:52 AM

To: Pelton, Jason M (DEC) <jason.pelton@dec.ny.gov>; LaClair, Jess A (DEC) <jess.laclair@dec.ny.gov>; Johnston, Sarah A (DEC) <Sarah.Johnston@dec.ny.gov>; Sullivan, Jim (HEALTH) <Jim.Sullivan@health.ny.gov>; Stabulas.Alexis@epa.gov

Cc: Richard Lenz (rlenz@oysterbay-ny.gov) <rlenz@oysterbay-ny.gov>; mrusso@OYSTERBAY-NY.gov; edward.hannon@ngc.com; Rich Poff <rpoff@verdantas.com>; Christina Tuohy <ctuohy@verdantas.com>; Bill Lais <wlais@verdantas.com>

Subject: OU3 Data Gap Sampling Plan

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On behalf of Northrop Grumman, we are submitting the OU3 Data Gap Sampling Plan for review. It is an abbreviated version of the OU3 Data Gap Sampling Work Plan, which will include additional details on sampling procedures and protocols. The Work Plan will be submitted following regulatory approval of this Sampling Plan. Please let us know if you have any questions.

Data Gap Sampling Plan for Operable Unit 3

Introduction

On behalf of Northrop Grumman System Corporation (Northrop Grumman), Verdantas has prepared this Data Gap Sampling Plan (Sampling Plan) for the Former Grumman Bethpage Facility Operable Unit 3 Site (OU3) in Bethpage, New York. This Sampling Plan provides the scope of work for PCBs and metals sampling for 3 areas within the 18-acre Bethpage Community Park (Park) consisting of: 1) a formerly used baseball field (former ballfield); 2) a playground; and 3) the greenspaces and sidewalks adjacent to the swimming pool (pool area). A Data Gap Sampling plan for limited PCB and metals sampling in the small portion of the ballfield currently being thermally treated for VOCs will be submitted prior to initiation of the VOC confirmation sampling.

This Sampling Plan provides figures and tables displaying proposed soil borings and sampling depths to further delineate and fill data gaps for PCBs and metals in soil. The Sampling Plan also provides general descriptions of sampling methods. Detailed sampling methods and other protocols to be used during the sampling activities will be described in a Data Gap Sampling Work Plan (Work Plan) to be submitted approximately 2-3 weeks following regulatory acceptance of this Sampling Plan. The Work Plan will include details of drilling methods and sampling procedures, decontamination, investigation derived waste management, quality control protocols, CAMP, HASP, sample documentation, and schedule.

Background

Soil sampling for PCBs was conducted at OU3 in a series of investigations under NYSDEC requirements from 1999 through 2018 with a total of 970 borings advanced. Approximately 4,400 soil samples were analyzed for PCBs and approximately 2,000 were analyzed for metals. The sampling results are presented graphically in **Figures 1 to 19**, which also contour the PCB concentration data (1ppm, 10ppm, and 50ppm) to show the vertical and lateral extent of total PCBs.

In the former ballfield, PCB concentrations in the upper 10 feet below ground surface (bgs) are variable and can be found throughout the ballfield. The highest PCB concentrations are found in the north-central portion of the ballfield. Below 10 feet bgs, PCBs are generally found in the western portion of the former ballfield. The deepest extent of PCBs greater than 50 parts per million (ppm) were reported in the 25–30-foot bgs interval in one sample.

In the playground and pool area, PCB concentrations in the upper 10 feet bgs are variable and can be found throughout the area. The highest PCB concentrations are found in the southern portion of the area, adjacent to the Grumman Access Road and in the western extent, adjacent to the former ballfield. Only 3 samples in the playground and pool area exceeded 50 ppm PCBs. Below 10 feet bgs, only 2 samples had a PCB detection of 1-10 ppm.

Sampling Objective and Scope of Work

The objective of this Sampling Plan and the subsequent Work Plan submittal is to acquire sufficient PCB and metals data to develop a remedial action work plan (RAWP) for remediation of soil above applicable remedial action objectives (RAOs) in the former ballfield, playground, and pool area. The scope of work includes use of drill rigs (sonic and direct push technology) to collect soil samples in target depth intervals to address additional delineation and filling of data gaps at the site. The sample locations and depth intervals are listed in **Tables 1 and 2** and shown in **Figures 1 to 19**. A total of 94 soil borings and 320 soil samples are proposed in the former ballfield and a total of 56 borings and 205 samples are proposed in the playground and pool area. **Figures 1 and 13**, which represent the 0-2 foot depth interval for the ballfield and playground/pool area respectively, show the locations of all proposed borings at ground surface. General guidelines used to select boring locations and sampling intervals are as follows:

- Samples will not be collected in the 0-2 foot bgs interval in the former ballfield and playground area because soil will eventually be excavated from the upper 2 feet in these areas.
- Samples will not be collected within the estimated limits of soil excavation based on the OU3 ROD RAOs, which are shown in **Figures 1 to 9**. Confirmation soil samples within these limits will be collected during excavation activities. For select borings advanced to deeper intervals, shallow samples may be collected within the estimated limits of soil excavation to aid in future off-site disposal calculations.
- PCBs will be delineated to 1 ppm in the 0-10 foot bgs interval in the pool area and in the 2-10 foot bgs interval in the playground and ballfield, except within the estimated limits of soil excavation under the ROD. Horizontal boring spacing will be 40 feet or less.

- PCBs will be delineated to 10 ppm in all 3 areas below 10 feet bgs, except within the estimated limits of soil excavation under the ROD. Horizontal boring spacing will be 40 feet or less.
- PCBs will be delineated to 50 ppm in all 3 areas, except within the estimated limits of soil excavation under the ROD. Horizontal boring spacing will be 40 feet or less.
- PCB data gaps will be filled at locations with limited historical data or where adjacent historical data indicate PCB concentration exceedances of 1 ppm in the upper 10 feet and/or 10 ppm below 10 feet bgs.
- In addition to PCBs, all soil samples collected in the 0-10 foot bgs interval in the pool area and 2-10 foot bgs interval in the playground and ballfield will be analyzed for metals.
- The following methods will be used for analysis of PCBs and metals in soil samples:
 - PCBs by USEPA Method 8082A
 - Metals (arsenic, barium, cadmium, chromium, lead, selenium, and silver) by USEPA Method 6020B.
- Where possible, borings will be advanced in grassy or soil covered locations. Soil borings may be moved up to 5 feet in any direction to address drill rig access or avoidance of damage to Park property where walking paths, playground equipment, utilities, or other structures obstruct access.
- In addition to the above general criteria, soil boring locations and sample intervals in the former ballfield are based on the following:
 - Historical PCB detections were generally limited to 0-30 feet bgs, with only 3 detections from 10-50 ppm in the 30-35-foot interval.
 - As a conservative measure, 25 of the 94 borings in the ballfield will be advanced to 45 feet bgs at locations where the above general criteria are to be met.
- In addition to the above general criteria, soil boring locations and sample intervals in the playground and pool area were based on the following:
 - Historical PCB detections were generally limited to 0-6 feet bgs, with only 1 detection from 1-10 ppm in the 6-8 foot bgs interval.
 - As a conservative measure, 25 of the 56 borings in the playground and pool area will be advanced to 20 feet bgs at locations where the above general criteria are to be met.
 - Soil borings located south of the swimming pool area may be relocated further south due to sloping terrain (see **Figures 13-19**).

Field Procedures

Site preparation activities (e.g., utility location and clearing, sample location stakeout, vegetation clearing, security fencing) will be detailed in the Work Plan.

The following procedures will be used for soil sample collection (detailed sampling descriptions and data quality control protocols will be provided in the Work Plan):

- Hand augers may be used to collect soil samples advanced to 4 feet or less.
- A direct push technology (DPT) drill rig will be used for borings to 20 feet bgs or less that are not hand-augered. If the DPT drill rig encounters difficulties in sample collection due to local lithology or obstructions, the location may be offset, or a rotary sonic drill rig will be used.
- A rotary sonic drill rig will be used for borings greater than 20 feet bgs. Sonic drilling will be employed without the use of drilling fluids if possible. If water is used in the drilling operations, it will not be recirculated into the boring.
- A discrete, representative grab soil sample will be collected in the intervals shown in **Tables 1 and 2**.

Other Procedures

Additional procedures and protocols for the following will be provided in the Work Plan:

- Equipment decontamination
- Investigation derived waste management
- Community Air Monitoring Plan
- Health and Safety Plan
- Documentation and Reporting
- Schedule

Attachments

Figure 1 Data Gap Investigation (0-2 ft Interval) – Former Ballfield

Figure 2	Data Gap Investigation (2-4 ft Interval) – Former Ballfield
Figure 3	Data Gap Investigation (4-6 ft Interval) – Former Ballfield
Figure 4	Data Gap Investigation (6-8 ft Interval) – Former Ballfield
Figure 5	Data Gap Investigation (8-10 ft Interval) – Former Ballfield
Figure 6	Data Gap Investigation (10-15 ft Interval) – Former Ballfield
Figure 7	Data Gap Investigation (15-20 ft Interval) – Former Ballfield
Figure 8	Data Gap Investigation (20-25 ft Interval) – Former Ballfield
Figure 9	Data Gap Investigation (25-30 ft Interval) – Former Ballfield
Figure 10	Data Gap Investigation (30-35 ft Interval) – Former Ballfield
Figure 11	Data Gap Investigation (35-40 ft Interval) – Former Ballfield
Figure 12	Data Gap Investigation (40-45 ft Interval) – Former Ballfield
Figure 13	Data Gap Investigation (0-2 ft Interval) – Playground and Pool Area
Figure 14	Data Gap Investigation (2-4 ft Interval) – Playground and Pool Area
Figure 15	Data Gap Investigation (4-6 ft Interval) – Playground and Pool Area
Figure 16	Data Gap Investigation (6-8 ft Interval) – Playground and Pool Area
Figure 17	Data Gap Investigation (8-10 ft Interval) – Playground and Pool Area
Figure 18	Data Gap Investigation (10-15 ft Interval) – Playground and Pool Area
Figure 19	Data Gap Investigation (15-20 ft Interval) – Playground and Pool Area
Table 1	Proposed Ballfield Boring Locations and Sample Intervals
Table 2	Proposed Playground and Pool Area Boring Locations and Sample Intervals

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